

Application No. 10/702,207
Response to Office Action

Customer No. 01933

Listing of Claims:

1. (Currently Amended) A ~~device arrangement structure for~~
hybrid power system for driving a hydraulic pump in construction
equipment, in which ~~a hydraulic pump is driven with use of an~~
~~engine and a generator motor in combination,~~ and an inflow of
5 discharge oil ~~of said~~ from the hydraulic pump to hydraulic
actuators is controlled to drive at least one working machine,
said power system comprising:

an engine for driving the hydraulic pump, wherein said
hydraulic pump is being connected to said engine via a first
10 power take-off; and

~~wherein i)~~ a regenerative motor which is directly driven by
return oil from said hydraulic actuators, and which regenerates
at least one of inertia energy ~~or~~ and potential energy of said
working machine to drive said hydraulic pump; and ~~, ii)~~ said

15 a generator motor for driving the hydraulic pump in
combination with the engine, which is said generator motor being
driven as a generator ~~with~~ by surplus torque when a regeneration
torque of said regenerative motor is larger than a driving torque
of said hydraulic pump, and said generator motor being is driven
20 drivable as an electric motor to assist with ~~drive~~ driving of
said hydraulic pump; [[,]]

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Application No. 10/702,297
Response to Office Action

Customer No. 493

wherein the regenerative motor and the generator motor are
provided in parallel with said hydraulic pump via said first
power take-off.

2. (Currently Amended) A ~~device arrangement structure for~~
hybrid power system for construction equipment in which a
hydraulic pump is driven ~~with use of by~~ an engine and a generator
motor in combination, and in which an inflow of discharge oil ~~is~~
5 said from the hydraulic pump to hydraulic actuators is controlled
to drive at least one working machine, said system comprising:

(i) devices of a high pressure hydraulic system including:

i) said hydraulic pump connected to said engine via a
first power take-off,

10 ii) a hydraulic valve for controlling ~~an~~ the inflow of
~~discharge the~~ oil to said hydraulic actuators,

iii) a regenerative motor which is connected to said
hydraulic pump via said first power take-off, which is driven by
return oil from said hydraulic actuators, and which regenerates
15 at least one of inertia energy ~~or and~~ potential energy of said
working machine to drive said hydraulic pump, and

iv) a working fluid tank for draining the return oil
from said hydraulic actuators via said regenerative motor, and
wherein (ii) devices of a charging system including:

Application No. 10/702,207
Response to Office Action

Customer No. ~~1593~~

20 ~~a)~~ said generator motor which is driven as a generator
with by surplus torque when a regeneration torque of said
regenerative motor is larger than a driving torque of said
hydraulic pump, and which is driven drivable as an electric ~~motor~~
to assist with ~~drive~~ driving of said hydraulic pump,

25 ~~b)~~ a capacitor device which is charged with by
generation electric power of produced by said generator motor ~~as~~
~~the generator when the generator motor is driven as a generator,~~
and which supplies driving electric power as to the electric
motor, and

30 ~~c)~~ an inverter which controls ~~charge~~ charging of said
~~generator motor into~~ said capacitor device by the generator
motor, and ~~drive~~ driving of said generator motor ~~as the electric~~
~~motor by the capacitor device,~~

wherein said devices of the charging system are placed
35 separately from said devices of the high pressure hydraulic
system.

3. (Currently Amended) The ~~device arrangement structure~~
~~for the hybrid construction equipment system~~ according to
Claim 2, wherein said inverter is placed at an upstream side of a
fan driven by said engine; and

Application No. 10/702,207
Response to Office Action

Customer No. 91933

5 wherein said generator motor is connected to said engine
[[,]] at a side ~~near~~ of said engine nearer to said inverter.

4. (Currently Amended) The ~~device arrangement structure~~
~~for the hybrid construction equipment system~~ according to
Claim 2, wherein said inverter is placed at an upstream side of a
suction ~~type~~ fan driven by said engine; and

5 wherein said generator motor is connected to said engine ~~via~~
a second power take-off ~~provided at said engine,~~ at a side ~~near~~
to of said engine nearer to said fan.

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